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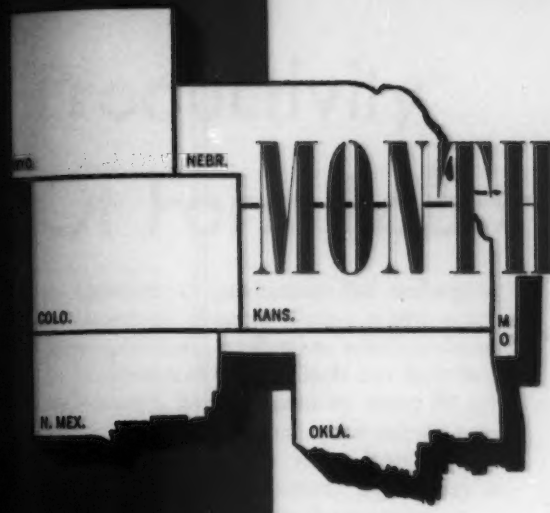

MONTHLY REVIEW

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FEDERAL RESERVE BANK
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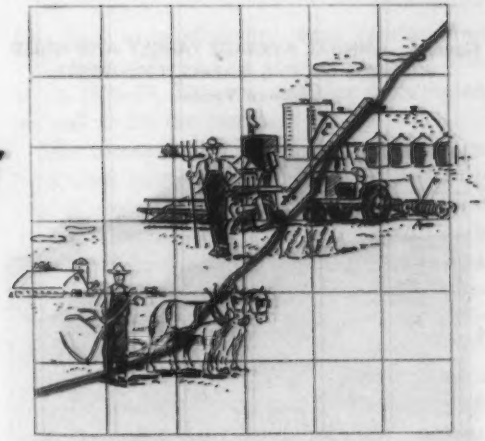
Productivity Of Farm Labor



AGRICULTURAL production has undergone numerous changes during recent years. Total agricultural production, which includes the production of work animals and their feed requirements, has increased by about 50 per cent since 1910. Production for human consumption increased by more than 75 per cent during the same period. Technology is primarily responsible for these increases.

Technology has brought mechanization to agriculture. On January 1, 1910, there were approximately 1,000 tractors on farms in the United States. In 1954, there were about 4.6 million tractors. The value of machinery and equipment on farms increased from nearly $1.4 billion in 1910 to more than $17 billion in 1953.

The adoption of new and more productive practices by farmers has been a feature of advancing technology. The use of commercial fertilizers is an example. In 1910, approximately 5.5 million tons of commercial fertilizers were applied in the United States. In 1952, about 22.7 million tons were used on approximately 18 per cent more cropland.

Adoptions of innovations such as these have caused the position of farm labor to change in relation to other productive agents. This study will analyze these changes in terms of employment, labor requirements, and farm wage rates.

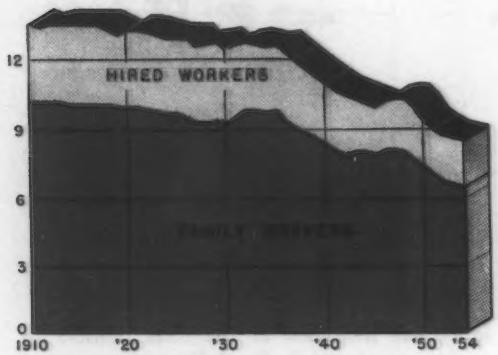
Farm Employment

With few exceptions, total farm employment in the United States has declined consistently since 1910. This trend is depicted in Figure 1. The relative importance of family labor has increased as the total number of persons employed declined. When farm operators have needed to reduce the labor force, they generally have released hired labor.

The number of hired workers has declined about 1.5 million since 1910. The rate of decrease was gradual prior to 1930. From 1930 to 1935, employment of hired workers dropped about 312,000 persons, while family labor increased approximately 548,000 persons. The decline in the number of hired laborers in recent years can be attributed to World War II, the advantages of nonfarm employment created by the industrial boom following the war, and the continuing high rate of agricultural mechanization. From 1910 until 1930, family workers on farms declined by about 900,000 persons. Following the short period of increase during the 1930's, family employment again continued to decline regularly.

The general pattern of total farm employment in the Nation has prevailed for all sections, except the Pacific and mountain states. In these areas, total employment on farms has increased substantially over 1919—the earliest date for which data are available. This trend has been largely the result of the increase in crops with high labor requirements, such as cotton, fruits, and winter vegetables.

Figure 1. ANNUAL AVERAGE FAMILY AND HIRED WORKERS ON U. S. FARMS, 1910-1954*
Millions of Persons



* Data for 1954 are preliminary.
SOURCE: U. S. Department of Agriculture.

As farm employment decreased, farm population also declined. In 1910, farm population was approximately 35 per cent of the total United States population. In 1950, it accounted for about 17 per cent of the total. The decrease in persons on farms during this period was about 7.7 million. This occurred despite natural increases in farm population averaging about 425,000 persons per year. Farm population has continued to decline rapidly since 1950.

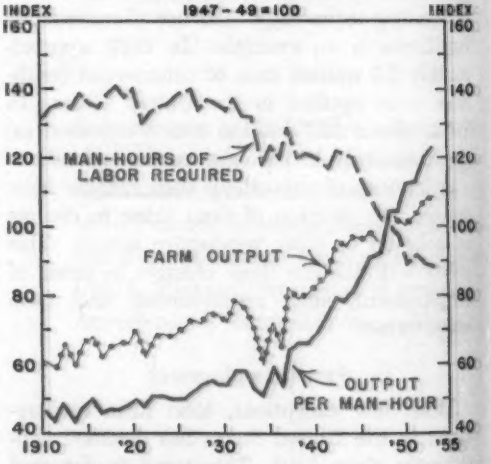
The causes of declines in farm population and farm employment probably are 3-fold: (1) the attractions of high wages and standards of living in urban life, (2) decreased demand for farm labor resulting from increased labor productivity, and (3) a more rapid increase in nonfarm labor demand than could be satisfied by the natural increase in the urban labor force. The continued growth in demand for nonagricultural commodities such as automobiles and radios has enabled industry to compete favorably with agriculture for the services of farm workers.

Production Per Man-Hour

The productivity of farm labor usually is measured in one of two ways—production per man-hour or production per farm worker. Man-hours of labor required for farm work are compared with the trends in farm output and output per man-hour in Figure 2. Man-hour requirements have declined fairly consistently since 1931 for agriculture as a whole. Of course, labor requirements vary from crop to crop and from region to region. Labor requirements for the production of food grains have declined by 60 per cent since 1910, those for cotton and cottonseed by 50 per cent, and those for fruits and tree nuts by 10 per cent.

The importance of these changes on a crop basis has been reflected in regional changes in labor requirements. Since 1919, man-hour requirements have decreased 48 per cent for the west southcentral region and 41 per cent for the west northcentral region. These are the two primary food-grain producing areas

Figure 2. TRENDS IN FARM OUTPUT, LABOR REQUIREMENTS, AND LABOR OUTPUT
United States, 1910-1953*



* Data for 1953 are preliminary.
SOURCE: U. S. Department of Agriculture.

of the country and mechanization has been going forward rapidly. The south Atlantic region, where cotton is important, has had a decline of 29 per cent in labor requirements. The Pacific coast states, where fruit and vegetable and truck crop production is important, had an increase of 4 per cent in man-hours of labor required during the period 1919-53.

Farm output has increased substantially since 1910 despite the nationwide decrease in labor requirements. Although there has been considerable regional variation, output has risen significantly in each region.

Since 1910, output per man-hour has moved upward from approximately 46 to 120 in 1952. The rate of increase was gradual prior to 1932. A combination of drought and depression caused a sharp decline from 1932 to 1934 and wide fluctuation from 1934 to 1936. Beginning with 1937, farm output per man-hour has increased quite rapidly--approximately 78 per cent during the period 1938-40 to 1951-53, compared to 37 per cent from 1919-21 to 1938-40. Table 1 indicates the increase in farm output per man-hour for the United States as a whole and by geographic divisions since 1919.

Table 1. REGIONAL CHANGES IN FARM LABOR PRODUCTIVITY

Geographical Division	Percentage Change in Output Per Man-Hour		
	1919-21 to 1938-40	1938-40 to 1951-53	1919-21 to 1951-53
New England	35.4	75.4	137.5
Middle Atlantic	38.0	72.5	138.0
East northcentral	43.5	87.9	169.6
West northcentral	32.6	96.7	160.9
South Atlantic	38.9	56.0	116.7
East southcentral	28.6	55.6	100.0
West southcentral	42.2	76.6	151.1
Mountain	45.4	82.8	165.9
Pacific	43.1	58.9	127.4
United States	36.7	77.6	142.9

SOURCE: U. S. Department of Agriculture.

Increases in productivity were greater from 1938-40 to 1951-53 than they were from 1919-21 to 1938-40. This was true for each region as well as for the Nation.

The increase in labor productivity can be attributed largely to technology. A comparison of productivity increases by geographical regions is indicative of the degree to which technological improvements have been used. For example, mechanization in the northcentral regions is well developed because the principal crops--wheat and corn--are adaptable to machine cultivation. This area also is normally deficient in labor. The southcentral regions, on the other hand, have had less farm labor productivity increase because of the difficulty of mechanizing cotton production, particularly harvesting, and the availability of abundant, comparatively cheap labor.

Changes in the pattern of agricultural production may account for differences in labor productivity between regions. Some types of agriculture lend themselves effectively to increasing labor productivity. Improved techniques have reduced labor requirements more for wheat and small grain production than for citrus fruit or vegetable production. This has been a continuing tendency, since mechanization of grain production has progressed more rapidly. The Pacific states have been undergoing a shift from crops with comparatively low labor requirements, such as wheat, to crops with high labor requirements, such as fruits and vegetables. Thus, the increase in productivity per man-hour has been fairly small for the Pacific division compared to the increase in productivity per acre of cropland.

The percentage change in the productivity of labor engaged in selected crop and livestock production over a number of periods is indicated in Table 2. Labor productivity showed the largest increase during World War II. This trend has continued into the

Table 2. CHANGES IN U. S. FARM PRODUCTION PER MAN-HOUR BY SELECTED ENTERPRISES 1910-1952

Enterprises	Change in Production Per Man-Hour				
	1910-12 to 1919-21	1919-21 to 1937-39	1937-39 to 1944-46	1944-46 to 1950-52	1910-12 to 1950-52
	In per cent				
Livestock and products: *					
All livestock and products	0	7.4	17.3	23.6	55.8
Meat animals	2.9	6.0	6.7	10.8	29.0
Milk cows	4.1	10.4	14.4	28.2	68.5
Poultry	—1.9	14.4	8.8	33.1	62.4
Crops:					
All crops	9.4	26.3	34.9	34.4	150.4
Feed grains	10.4	24.4	48.1	72.2	250.5
Hay and forage	—0.4	18.5	29.0	53.3	132.9
Food grains	9.5	63.0	69.3	42.1	329.8
Vegetables	2.6	18.2	17.1	16.1	64.8
Fruits and nuts	11.8	42.1	9.6	6.4	85.3
Sugar crops	—3.4	33.3	3.1	47.2	95.5
Cotton	—5.4	49.3	16.7	40.2	131.1
Tobacco	—5.1	2.1	14.1	11.0	22.6
Oil crops	—20.7	55.2	39.6	121.2	281.2

* Production of livestock and livestock products, horses and mules excepted.

SOURCE: U. S. Department of Agriculture.

postwar period, with an annual rate of increase only slightly less than during the war years. The rate of increase in crop productivity has been substantially greater than for livestock production during all periods under consideration. This tendency for productivity in livestock enterprises to lag behind that in crop production probably can be attributed to the difficulty of adapting mechanization to livestock production.

Among the various livestock enterprises, productivity increase has been greatest in milk production. The general pattern of productivity increase applies, however, to all livestock enterprises. Livestock production per breeding unit rose rapidly from 1919 until the early 1930's. Although man-hours of labor expended per breeding unit also rose, moderate increases in livestock production per hour of labor were obtained. Subsequent to 1936, labor requirements per breeding unit have decreased rapidly as milking machines, rural electrification, and other labor-saving advances have gained wide acceptance. The reduction in labor requirements, along with continuing advances in production per breeding unit, have caused acceleration in the rate of productivity increase in livestock.

Production per man-hour of labor for all crops has more than doubled since 1910-12. Only in tobacco production has the increase been less than 50 per cent. Productivity per man-hour of labor in feed grains has increased by more than 200 per cent, while that in food-grain production has more than tripled.

Increases in productivity per labor unit expended on crops have been caused by two types of influences—those serving to increase per-acre yields and those tending to decrease the amount of labor needed per acre. Prior to 1930, reductions in labor requirements per acre were almost wholly responsible for the increase in labor productivity. This influence is evident in Table 2 where food-grain enterprises (largely wheat) are compared with tobacco production. Prior to 1937, the replacement of men by machines was largely responsible for the great increase in productivity per man-hour of labor expended on food-grain production. Since 1937-39, improved weather conditions, increased use of fertilizers, and the introduction of higher yielding varieties have brought about an increase in crop yields. Together with continuing mechanization, this has brought about an even greater increase in labor productivity. On the other hand, labor productivity in tobacco has increased only 23 per cent during the entire period. The largest part of this increase has been caused by favorable weather conditions, increased rates of fertilizer application, and the introduction of more effective methods of pest control. These developments have occurred largely since 1937-39.

Production Per Farm Worker

Trends in production per farm worker have been similar to those taking place in production per man-hour. Year-to-year movements and changes over a period of years usually have been in the same direction but of different magnitude. Labor requirements in terms of man-hours have been more sensitive to changes in farming methods and the economic conditions surrounding agriculture than have the number of farm workers. During periods of increased need, the tendency has been to introduce labor-saving techniques and put in longer hours before hiring extra persons. In slack periods, fewer hired workers have been used and underemployment has become more prevalent.

During both World Wars, farm employment was down relative to labor requirements. Many farm workers were drawn into the armed forces or to war industries, particularly during World War II. The return of soldiers and war workers to farms resulted in an increase of both family and hired labor following both wars.

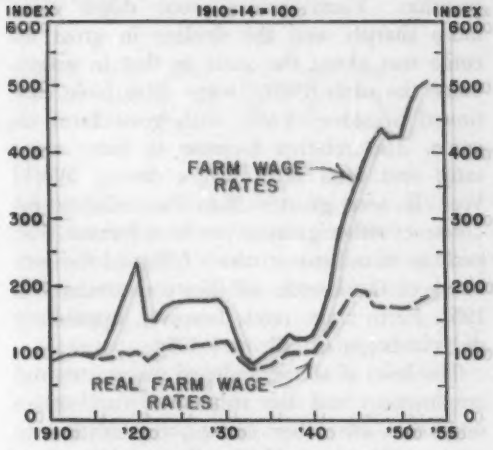
The drought and depression periods of the 1930's brought about a surplus of workers on farms relative to labor requirements. With a limited number of industrial jobs available, many persons who remained on farms were underemployed. The onset of World War II altered the situation rapidly, as workers left the farms for the armed forces and war industries.

Farm Wage Rates

Trends in farm wage rates in the United States—both money wages and real wages—are shown in Figure 3. When a labor shortage has existed, farm wage rates have increased. During periods of underemployment and an abundance of labor, they have decreased. Wage rates, when measured in terms of money, have grown to more than five times their 1910-14 level. When measured in terms of purchasing power, however, they were less than twice as high in 1953 as in the 1910-14 period and actually declined slightly from the peak attained in 1945.

Figure 3. TRENDS IN FARM WAGE RATES

United States, 1910-53



SOURCE: U. S. Department of Agriculture.

Farm incomes largely determine the farmers' ability to pay wages. Income also is correlated closely with other factors making for changes in wage rates, such as the level of prices received by farmers, the wages and earnings of industrial workers, and the level of nonagricultural activity and employment.

Farm wage rates tend to lag about a year behind gross farm income. This may be due partly to the fact that wage commitments are made before the receipt of income from that year's production and wages are paid in part out of the income of the preceding year. During World War I, wage rates rose by approximately the same percentage as did prices received, reaching a peak in 1920 at about 240 per cent of their 1910-14 level. The peak in income occurred, however, in 1919.

Following World War I, wage rates declined quite sharply during the 1921-22 depression. Farm prices went down even more sharply and the decline in gross income was about the same as that in wages. Since the early 1920's, wage rates have continued to move closely with gross farm income. The relative increase in farm wage rates and total farm wages during World War II was greater than the relative increase in either gross or net farm income. The peak in farm income which followed the outbreak of the Korean conflict was attained in 1951. Farm wage rates, however, apparently did not begin to fall until 1954.

The level of nonagricultural wage rates and employment and the volume of rural-urban migration are other factors, in addition to prices and income, which influence farm wage levels by altering the supply of available farm labor. The cumulative effect of all these factors perhaps was most evident during the depression of the 1930's. Declining nonfarm employment led to a decrease or a reversal in the migration of farm workers to nonfarm employment, resulting in a large supply of farm labor. At the same time, the greater productivity of labor, brought about by the rapid rate of mechanization during the 1920's, led to a decline in demand for farm workers. The increase which developed in farm labor supply relative to farm labor demand caused lowered farm wage rates.

The decline in number of hired farm workers has offset the great increase in farm wage rates so that the importance of wages in total production expenditures has declined during the last 40 years. The decline was quite persistent prior to World War II when the shortage of labor caused farm wage rates to increase rapidly while expenditures on other resources declined relative to total production expenses.

Table 3. TOTAL PRODUCTION EXPENSES AND WAGES OF HIRED FARM LABOR, SELECTED PERIODS
United States

	1910-12	1919-21	1937-39	1944-46	1950-52*
	Millions of dollars				
Wages of hired farm labor	767.3	1,489.0	984.3	2,358.0	2,880.0
Total production expenses	3,633.3	8,020.0	6,020.0	13,318.0	21,681.0
Wages as per cent of total expenses	(21.1)	(18.6)	(16.4)	(17.7)	(13.3)

*Data for 1952 are preliminary.
SOURCE: U. S. Department of Agriculture.

Summary

Increased mechanization and technological innovations have greatly altered the agricultural industry of the United States. Production has increased rapidly, both in total and on a per-acre or breeding-unit basis. Concurrently, the amount of human labor—measured in hours of labor or by number of laborers employed—has been decreasing. The resultant increase in productivity of agricultural labor has led to lower long-run demand for farm labor.

The increase in labor productivity has not been the same for all types of agricultural production. In general, increases have been greater in crop than in livestock production. Variations in the rate of increase have existed among individual enterprises comprising these classifications. Geographical differences in productivity have been closely associated with the type of agriculture in each area.

The short-run relationship between labor demand and supply, however, varies from period to period. Beginning in 1940 and continuing to the present, there has been a relative scarcity of farm labor. The severity of this shortage is indicated by the increase in the wage level which has taken place subsequent to 1940, particularly in real wages.

Financing Farm Commodity

PRICE SUPPORTS

COMMERCIAL BANKS in the Tenth District extend large amounts of credit to agriculture through loans guaranteed by the Commodity Credit Corporation as a part of the farm commodity price-support program, as well as through other loans to farmers, with or without collateral. At the end of 1954, District member banks alone held $236 million of CCC-guaranteed loans. By using local banks to carry a part of the guaranteed loans, the Corporation has permitted private capital to be used in the price-support program and has employed a network of financial institutions well equipped to respond to the needs of the farmer for this form of credit accommodation.

The magnitude of lending operations on guaranteed loans in the District lends interest to some of the broader and lesser known financial aspects of the price-support program, particularly since guaranteed loans have increased substantially as farm prices have fallen over the past several years. Furthermore, recent Congressional hearings and reports of the Corporation over the past 12 months have made information available that heretofore was not readily accessible.

Extension of guaranteed loans by local lending institutions is encouraged by the fact that the charter of the Corporation enables it to take over, on demand, loans held by these agencies. Current procedure also allows banks to sell their loans to other banks. Thus, if the local demand for credit—both guaranteed and nonguaranteed—exceeds the resources that the bank desires to commit to loans, outside capital can be recruited to alleviate the deficiency. Other worthy requirements for bank accommodation therefore need not suffer because of a sharp increase in the demand for guaranteed loans.

Banks are compensated on guaranteed loans by an interest payment, the rate of which is set at the beginning of each lending year, and by a payment for services rendered in administering the loan, provided the bank has been approved as a servicing agency. If the farmer should desire to repossess his commodity by retiring his loan, he pays interest and total service charges of 3½ per cent a year. This gross rate consists of interest at 1¾ per cent, a service fee of ½ per cent to the lending agency, and the remainder to the Corporation. If the loan is not redeemed by the farmer before or at maturity, the Corporation retires the loan and takes possession of the commodity, paying interest and service charges of 2¼ per cent a year to the lending agency.

The average size of transactions handled by banks in making guaranteed loans is indicated by the table below. Although some farmers borrow on more than one note in placing their crop under loan, the average amount borrowed by a typical farmer probably is not significantly higher than the values shown.

Beyond the local transactions between the farmer and the banker, there is a chain of procedure linking the local bank to the Commodity Credit Corporation, which, in turn, relies upon the United States Treasury for financing in accordance with authority given

AVERAGE SIZE OF CCC LOAN ON 1953 CROPS
Tenth District States

States	Corn	Wheat	Cotton
Colorado	$2,031	$3,152	$ —
Kansas	1,575	1,525	—
Missouri	1,994	1,695	395
Nebraska	2,487	2,708	—
New Mexico	—	2,000	500
Oklahoma	857	2,367	229
Wyoming	—	4,266	—

by Congress. Some conception of the scale of and the problems involved in financing the program as a whole can be gained from examination of information relating to the Corporation.

While other methods of obtaining funds were employed by the Corporation in the early years of its operations, for almost a decade it has been financed largely through Congressional authority to borrow from the Treasury as funds are required. The Corporation's maximum authority to borrow has been maintained by Congress at a level sufficient to carry inventories of commodities on hand and outstanding loans on commodities —whether held by the Corporation itself or by other lending agencies—plus an adequate margin to make possible such additional loans as farmers are expected to request in the marketing year. If this margin should prove insufficient, owing to an unexpectedly heavy demand from farmers for guaranteed loans, the Secretary of Agriculture would ask Congress for additional authority to borrow. Conversely, the power to borrow may be well above the needs of the Corporation, as was the case from 1950 to 1953. Since the authority is used only as the occasion demands, Congress has not reduced the maximum even when it greatly exceeded the immediate needs of the Corporation.

The charter of the Corporation requires that total borrowings from the Treasury and obligations to purchase loans made by lending agencies at no time exceed the maximum borrowing authority established by Congress. The following table shows the level of borrowing authority and the amount of funds for the program supplied by the Treasury and lending agencies, principally banks, on recent selected dates. The marked growth in the volume of guaranteed loans at lending agencies from June 1953 to the end of 1954 was attributable in part to public offerings of certificates of interest by the Corporation. These offerings facilitated the participation of city banks in supplying funds for the program. Also responsible was the institution of the system by which banks were enabled to sell their guaranteed loans to other banks. The drop in market prices of farm commodities was, of course, of basic importance in causing farmers to place their crops under loan.

As loans held by lending agencies mature, they are presented to the Corporation for redemption, unless farmers choose to redeem them. When notes are presented, the Corporation then draws upon the Treasury for funds. Thus, the use of banks to finance the loans delays employment of Government balances. Simultaneously with the redemption of loans, the Corporation takes possession of the commodities held as collateral and its inventories are increased.

TRENDS IN AMOUNT AND USE OF CCC BORROWING POWER
In millions of dollars

Date	Total Borrowing Authorized	Borrowing Power in Use			
		Total in Use	Borrowings from Treasury	Guaranteed Loans Held by Lending Agencies	All Other
June 30, '49	4,750	2,203	1,669	524	10
June 30, '50	6,750	3,636	3,193	443	
June 30, '51	6,750	2,610	2,555	55	
June 30, '52	6,750	2,028	1,970	58	
June 30, '53	6,750	3,900	3,612	288	
June 30, '54	8,500	6,188	4,180	2,008	
Dec. 31, '54	10,000	7,878	5,532	2,346	

The sharp increase in the use of borrowing authority since June 30, 1952, was necessitated by a similar increase in the volume of commodities either owned outright by the Corporation or held as collateral for outstanding loans. While the figures shown in the accompanying table represent the cost of inventories held by the Corporation, reserves for losses have been established in each accounting period. The Corporation's statement of accounting policies indicates that annual appraisals as of June 30, 1953, and as of the close of prior fiscal years, were based upon valuation of assets at either cost to the Corporation or average market value during June of the fiscal year—whichever is lower. Capital impairment determined in that manner resulted from valuation of assets at less than cost and from realized losses on sales and other operations. In March 1954, Congress revised this procedure to provide that the appraisal of assets should be on the basis of cost to the Corporation. This change defers the restoration of the capital of the Corporation by Congressional appropriation or cancellation of its debt to the Treasury until the year in which commodities are sold and losses are realized.

The power of the Corporation to reduce its inventories is limited in several respects. The amended Agricultural Act of 1949 provides that, with certain exceptions, notably exports, basic agricultural commodities may not be sold at less than 5 per cent above the current support price for such commodities, plus reasonable carrying charges. Later legislation provides that commodities supplied to exporters for sale for foreign currencies are not subject to the sales price restrictions noted above. Other specific programs operating outside these restrictions have contributed to inventory reduction. For example, in the year ended June 30, 1954, under the emergency feed program for designated drought-stricken areas, the Corporation sold $111 million of commodities to farmers at a price of $70 million. Under the commodity export program in the same year, wheat costing $108 million was sold to friendly nations for $81 million. Nevertheless, it is apparent that a marked increase in farm prices would be necessary to reduce existing inventories materially under current directives.

FARM COMMODITY INVENTORIES HELD OUTRIGHT AND UNDER LOAN, UNITED STATES
In millions of dollars

Date	Held Outright by CCC (at cost)	Under Loans Held by CCC	Under Loans Held by Lending Agencies	Total
June 30, 1949	1,133	745	524	2,402
June 30, 1950	2,643	472	438	3,553
June 30, 1951	1,501	284	50	1,835
June 30, 1952	1,131	311	53	1,495
June 30, 1953	2,413	854	283	3,550
June 30, 1954	3,728	335	2,002	6,065
Dec. 31, 1954	4,254	602	2,338	7,194

How Many Automobiles This Year?

AUTOMOBILE PRODUCTION has been at unusually high levels since the introduction of the 1955 models. Through the middle of March, production exceeded the 1954 volume by about 48 per cent, with the annual rate of output more than 8.5 million units. Estimates of the market for new autos, however, are considerably below this production rate. Early forecasts for 1955 were 300,000 to 500,000 above the 5.5 million factory sales in 1954. Because of strong sales during the first two months of the year, most industry observers, as well as the auto manufacturers, now consider 6 million sales as a minimum. In revising an earlier statement, one of the largest auto producers predicted that passenger car production may exceed the record output of nearly 6.7 million units in 1950.

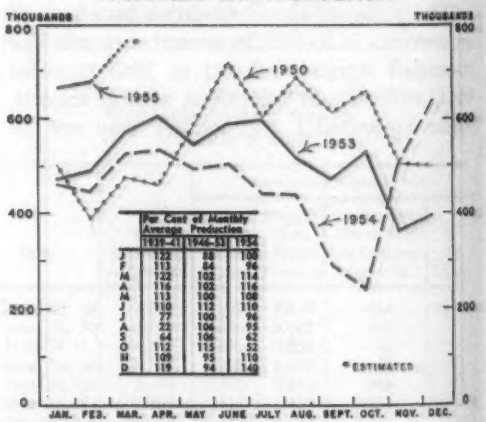
Consumers' plans to buy new automobiles in early 1955 are about the same as those in early 1954, according to the preliminary findings of the Survey of Consumer Finances conducted by the Board of Governors of the Federal Reserve System in cooperation with the Survey Research Center of the University of Michigan. The proportion of consumers planning new car purchases is smaller than in early 1953 or 1950 but larger than in early 1952 or 1951. More of the prospective purchases of new cars are expected to be in the first half of the year than was true a year ago.

Kansas City has a special interest in the automobile industry because three assembly plants are located in the area. In 1954, approximately 400,000 cars and trucks were assembled in Kansas City, 6 per cent of total U. S. production. During the opening months of 1955, production in Kansas City was running ahead of a year earlier.

The auto industry commands a good deal of attention nationally because of its importance to industrial activity. A large part of the increase in industrial production since autumn has been associated with developments in the auto industry. From August to February, industrial production increased 8 per cent, on a seasonally adjusted basis, while auto output jumped 42 per cent. This pickup also influenced industrial production indirectly through expanded output in steel and other supplying industries.

The range of fluctuation in auto production during 1954 was larger than that in other postwar years, although not as pronounced as before World War II. From 1939 to 1941, production was highest in the first quarter, as inventories were built up for the spring and early summer selling season. Production was lowest in the third quarter and in August it was only 22 per cent of the monthly average. In 1954, the extreme variations were concentrated in the last quarter. Production fell to 52 per cent of the monthly average in October while the model changeover was in progress. In December, output equaled 140

PASSENGER CAR PRODUCTION



SOURCE: Ward's Automotive Reports.

per cent of the average as a result of the large number of 1955 model cars produced.

Final determination of the number of automobile sales this year rests with the consumer. His ability to buy and his preference for automobiles over other types of goods and services are variable. However, studies of the relationships of population and income to car ownership during past years, as well as of the age distribution of cars in use, help to define the market for new autos.

The increase in automobile registrations in the United States has exceeded population growth in recent years. The number of cars on the road is about 60 per cent greater than in 1941, while the adult population in July 1954 was only 17 per cent larger than in 1940. Recently, annual increments to the adult population have declined because of the reduced birth rate of the 1930's. The average annual increase in the number of families and unrelated individuals from 1947 to 1950 was 1.4 million, but between 1950 and 1954, it was only 603,000. This rate is not expected to increase much for several years. Accordingly, population growth does not offer as much stimulation as in the past.

Two thirds of all spending units interviewed in early 1954 owned at least one car, according to the Survey of Consumer Finances. The increase in car ownership during recent years is indicated by the fact that in 1948 only 50 per cent of the spending units in the United States owned autos; by 1950, the proportion was 55 per cent. Between 1952 and 1954, the percentage owning one automobile increased from 56 to 58, while the proportion with two or more cars doubled—going from 4 to 8 per cent.

An examination of car ownership by various income classes and within different regions of the country suggests some dimensions of potential growth in the market. In early 1954, nine tenths of the spending units with incomes of $5,000 and over owned a car, compared with seven tenths of those in the $3,000-$5,000 class, and only two fifths of those with incomes under $3,000. Among consumers with incomes of $5,000 and over, the percentage with two or more cars increased from 11 to 16 between 1952 and 1954, although the total proportion owning cars did not change.

AUTOMOBILE OWNERSHIP BY INCOME AND REGIONAL GROUPS

Owners as a per cent of all spending units

	1952		1953		1954	
	Owns		Owns		Owns	
	1 Auto	2 or More	1 Auto	2 or More	1 Auto	2 or More
Income:						
Under $3,000	36	1	35	1	39*	3*
$3,000-$4,999	70	4	66	4	65*	6*
$5,000 and over	78	11	73	14	73*	16*
Region:						
United States	56	4	55	5	58	8
North East	47	2	53	2	51	6
North Central	65	5	60	7	65	6
South	49	4	49	5	56	7
West	65	7	61	10	60	16

*Subject to rounding error.
SOURCE: Board of Governors, Federal Reserve System.

Disposable income set a new record last year and is likely to continue at high levels. In addition, the distribution of income is continuing to shift upward. The proportion of spending units with incomes of $5,000 or more increased from 21 to 31 per cent between 1951 and 1953, while the proportion earning less than $3,000 declined from 46 to 37 per cent, according to the Survey of Consumer Finances. While price movements become more important in longer comparisons, the change from 1945—a year when only 8 per cent of the consumers earned $5,000 or more and 70 per cent, $3,000 or less—represents an upward shift in the distribution of real income.

Car ownership varies a good deal in different sections of the country. In the West, 76 per cent of the spending units surveyed owned at least one automobile in early 1954 compared with only 57 per cent in the North East and 63 per cent in the South. The differences between regions, however, are not

as great as in previous years. Since 1952, the proportion has increased 19 per cent in the South, 16 per cent in the North East, and only 6 per cent in the West. With increased income (especially in the South), the continuing shift to the suburbs, and improved roadways facilitating automobile traffic, regional differences may be further reduced and the proportion of U. S. consumers owning autos could increase toward three fourths over a period of years.

With favorable income conditions, the replacement market, suggested by the age distribution of cars on the road, will offer support to a high level of new car sales. While the proportion of newer cars has increased, nearly one fifth of the 44 million cars on the road are prewar models, according to the latest information. However, the 8 million prewar cars in operation in July 1954 was about 11.5 million less than in 1950. In addition, a number of the cars built in the early postwar years are being replaced. An all-time high of nearly 3.4 million cars were scrapped in 1953.

The use of credit in the purchase of automobiles is well established. Recently, the ample volume of consumer credit has provided a stimulating influence on sales. Credit purchases have steadily increased during the postwar years. In 1947, only 29 per cent of the new car sales were financed, while in 1953, the proportion was about 59 per cent. The expansion in automobile loans during December and January points to the continued importance of credit in the current surge of car sales.

YEARLY CHANGE IN TOTAL U. S. PASSENGER CAR REGISTRATIONS

In thousands

Change from previous year in:	July 1950	July 1951	July 1952	July 1953	July 1954
Total car registrations	3,191	2,594	1,254	2,432	2,185
'50-'54 models	2,989	5,983	4,448	4,882	5,357
'46-'49 models	2,320	—138	—107	—92	—288
Pre-World War II models	—2,106	—3,262	—3,073	—2,367	—2,863

SOURCE: R. L. Polk & Co.

Current estimates of new car sales indicate that the volume in the first quarter will be the highest in history for that time of year. Sales in March are expected to exceed 600,000 units, which would be considerably higher than the record for that month. These first quarter estimates place sales about one third higher than in 1954 and about one fifth above the comparable period in 1953.

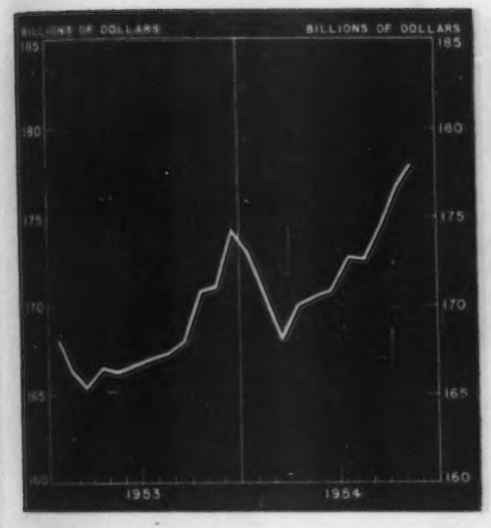
Despite the fast pace in new car sales, inventories have risen substantially from the October low. Dealers' inventories exceeded 550,000 units in early March, although they were still below the high levels of early last year. Inventories are expected to mount, however, as present production rates continue.

Output in February totaled about 676,000 cars as a monthly production record was set for the fourth consecutive month. In March, production will exceed the all-time high of 720,000 cars set in June 1950. This would result in a first quarter output of 2.1 million cars, which would also be a record for a quarter. In view of the announced differences between the auto union and the car manufacturers over a guaranteed annual wage, the possibility of a strike looms around midyear. With spring sales also coming into play, industry observers expect production in the second quarter to be maintained at the current high pace. This would mean that about 4.2 million cars would be produced during the first half of 1955.

The continued high level of income, the large number of old cars on the roads, and increased consumer preferences for autos favor a high level of new car sales. It is unlikely, however, that the market can absorb 8.5 million cars, the current output rate. Accordingly, auto production will not continue to make its present contribution to industrial production throughout the year.

MONEY SUPPLY

United States



SELECTED TYPES OF LOANS

U. S. & 10th Dist. Wkly. Reporting Banks

BANKING IN THE TENTH DISTRICT

District and States	Loans		Deposits	
	Reserve City Member Banks	Country Member Banks	Reserve City Member Banks	Country Member Banks
	February 1955 Percentage Change From			
	Jan. 1955	Feb. 1954	Jan. 1955	Feb. 1954	Jan. 1955	Feb. 1954	Jan. 1955	Feb. 1954
Tenth F. R. Dist.	+1	+15	+1	+7	−1	+4	−2	+3
Colorado	+1	+19	+1	+1	−1	+7	−2	+8
Kansas	−1	+23	0	+11	−5	+5	−3	+4
Missouri*	0	+16	+2	+10	−2	+2	−3	+2
Nebraska	+2	+14	+2	+ 4	−2	−1	−3	−1
New Mexico*	**	**	+3	+14	**	**	0	+8
Oklahoma*	+1	+10	0	+ 8	+1	+5	−1	+2
Wyoming	**	**	+3	+6	**	**	−3	+5

*Tenth District portion only. **No reserve cities in this state.

PRICE INDEXES, UNITED STATES

Index	Feb. 1955	Jan. 1955	Feb. 1954
Consumer Price Index (1947-49=100)	114.3	114.3	115.0
Wholesale Price Index (1947-49=100)	110.4	110.1r	110.5
Prices Rec'd by Farmers (1910-14=100)	245	244	258
Prices Paid by Farmers (1910-14=100)	283	283	282

r Revised.

TENTH DISTRICT BUSINESS INDICATORS

District and Principal Metropolitan Areas	Value of Check Payments		Value of Department Store Sales		*Value of Residential Bldg. Permits	
	Percentage change—1955 from 1954					
	Feb.	Year to date	Feb.	Year to date	Feb.	Year to date
Tenth F. R. Dist.	+9	+11	+3	+7	+17	+58
Denver	+10	+16	+8	+11	+73	+190
Wichita	+15	+22	+13	+17	+34	+60
Kansas City	+10	+12	−3†	+3†	−23‡	−19‡
Omaha	+3	−1	−4	−2	−23	+26
Okla. City	+16	+22	+17	+22	+23	+19
Tulsa	+3	+5	−1	+5	+13	+57

*City only. †Kansas City, Mo., only. ‡Kansas City, Mo., and Kans.

FEDERAL RESERVE BANK OF KANSAS CITY
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INCORPORATED MAY 18, 1914